DATA TRACKING AND TECHNICAL FACT SHEET

Permittee: City of Bristol

PERMIT, ADDRESS, AND FACILITY DATA

PERMIT #:CT0100374 **APPLICATION #:** 200502273 **FACILITY ID.** 017-001

Mailing Address:	Location Address:
Street: 111 North Main Street	Street: 75 Battisto Road
City: Bristol ST: CT Zip: 06010	City: Bristol ST: CT Zip: 06010
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PERMIT INFORMATION

DURATION 5 YEAR _X_ 10 YEAR ___ 30 YEAR ___

TYPE New _ Reissuance _X_ Modification ___

CATEGORIZATION POINT (X) NON-POINT ( ) GIS #

NPDES (X) PRETREAT () GROUND WATER(UIC) ( ) GROUND WATER (OTHER) ( )

NPDES MAJOR**(MA)** _X_
NPDES SIGNIFICANT MINOR or PRETREAT SIU **(SI)** ___
NPDES or PRETREATMENT MINOR **(MI)** ___

COMPLIANCE SCHEDULE YES_X_ NO_____
POLLUTION PREVENTION __ TREATMENT REQUIREMENT__
WATER QUALITY REQUIREMENT _X_ OTHER ___

OWNERSHIP CODE
Private __ Federal __ State __ Municipal (town only) _X_ Other public___

DEP STAFF ENGINEER Catharine Chu

PERMIT FEES

Discharge Code	DSN Number	Annual Fee
111000**f**	001	$3005.00

FOR NPDES DISCHARGES
Drainage Basin Code: 4315 Water Quality Classification Goal: **B**
Segment: Pequabuck River -03

NATURE OF BUSINESS GENERATING DISCHARGE
Municipal Sanitary Sewage Treatment

PROCESS AND TREATMENT DESCRIPTION (by DSN)
Secondary biological treatment plant with nutrient removal and seasonal UV disinfection

RESOURCES USED TO DRAFT PERMIT
_X_ Federal Effluent Limitation Guideline 40CFR 133 Secondary Treatment Category

__ *Performance Standards*

__ *Federal Development Document*
name of category

_X_ *Department File Information*

_X_ *Connecticut Water Quality Standards*

_X_ *Anti-degradation Policy*

__ *Coastal Management Consistency Review Form*

__ *Other - Explain*

BASIS FOR LIMITATIONS, STANDARDS OR CONDITIONS

_X_ *Secondary Treatment (Section 22a-430-4(r) of the Regulations of Connecticut State Agencies)*

_X_ *Case-by-Case Determination (See Other Comments)*

_X_ *In order to meet in-stream water quality (See General Comments)*

_X_ *Anti-degradation policy*

GENERAL COMMENTS

The Town/City of Bristol ("Bristol") operates a municipal water pollution control facility ("the facility") located at 75 Battisto Road, Britol, CT 06010. The facility is designed to treat and discharge up to 10.75 million gallons a day of effluent into Pequabuck River/Harbor/LIS. The facility currently uses advanced treatment with denitrification and UV disinfection to treat effluent before being discharged. Pursuant to Conn. Gen. Stat. § 22a-430, the Department of Energy and Environmental Protection has issued Bristol a permit for the discharge from this facility. Bristol has submitted an application to renew its permit. The Department has made a tentative determination to approve Bristol's application and has prepared a draft permit consistent with that determination.

The most significant changes from the current permit are the inclusion of Phosphorous limits, Nickel limits, revised bacteria monitoring requirements (e.g. e. coli), monitoring for Arsenic, Cadmium, and Chromium(tri), and Aluminum and Iron monitoring to be consistent with the most recent CT Water Quality Standards.

The City of Bristol is currently planning and designing a treatment plant upgrade to include ballasted flocculation for nutrient control as well as a new UV system. The current UV system is an older flow based system set using empirical, operating experience to turn units on or off at different flows. An updated system will allow the City to record the UV system with regard to Transmittance, Intensity, or Dose. Reporting this information to the Department will be added following installation of such capable instrumentation.

SPECIFIC REQUIREMENTS OR REVISIONS

The Department reviewed the application for consistency with Connecticut's Water Quality Standards and determined that with the limits in the draft permit, including those discussed below, that the draft permit is consistent with maintenance and protection of water quality in accordance with the Tier I Anti-degradation Evaluation and Implementation Review provisions of such Standards.

Additionally, this permit authorizes a discharge to a High Quality Water. The activities within this permit do not constitute a new or increased discharge and therefore, additional evaluations under Tier II Anti-degradation Evaluation and Implementation Review provisions of the Connecticut Water Quality Standards are not necessary.

The need for inclusion of water quality based discharge limitations in this permit was evaluated consistent with Connecticut Water Quality Standards and criteria, pursuant to 40 CFR 122.44(d). Bristol's discharge monitoring data was evaluated for consistency with the available aquatic life criteria (acute and chronic) and human health (fish consumption only) criteria, considering the zone of influence allocated to the facility where appropriate. In addition to this review, the statistical procedures outlined in the EPA Technical Support Document for Water

Quality-based Toxics Control (EPA/505/2-90-001) were employed to calculate the need for such limits. Comparison of the attached monitoring data and its inherent variability with the calculated water quality based limits indicates a low statistical probability of exceeding such limits. Therefore, water quality based limits for ammonia, copper, zinc, and nickel were included in the permit at this time.

The permit includes revised bacteria monitoring requirements (e.g. fecal coliform and e. coli) as required in the 2011 CT Water Quality Standards. Aluminum and Iron monitoring were included to be consistent with the most recent CT Water Quality Standards and EPA's National Recommended Water Quality Criteria, respectively.

A compliance schedule is included for the reduction of phosphorus in the effluent

Phosphorus Permitting Approach
Currently, the facility discharges into a portion of the Pequabuck River that has been identified on Connecticut's List of Waters Not Meeting Water Quality Standards. Nutrient enrichment is a contributing cause of the impairment to this portion of the Pequabuck River. To address this impairment, the Department of Energy and Environmental Protection ("the Department") developed an interim nutrient management strategy for freshwater non-tidal streams. The strategy focuses on phosphorus, since phosphorus is the primary limiting nutrient in freshwater systems. The draft permit includes a compliance schedule that will reduce phosphorus in the effluent from the facility to meet a limit applicable during April through and including October within four years of permit issuance. The limit, calculated over the season, is 0.1 mg/l per month. In addition to its current treatment processes, the Department anticipates that Bristol will employ chemical treatment with ballasted flocculation to meet this initial limit.

The Department also notes that the proposed compliance schedule is site specific; it is based upon and limited to the particular circumstances present in this situation. It is not, and is not intended to be, a blueprint for any other facility. Rather, the Department will assess the need for and propose the use of a compliance schedule based on the particular circumstances of each situation. In this situation, for reasons discussed in this fact sheet, the proposed compliance schedule is warranted.

The lower water quality standard based limits for phosphorus was calculated in the following manner:

A nutrient watershed analysis was conducted for the Farmington River watershed that indicated significant phosphorus loading contributions from certain water pollution control facilities ("WPCF") and one industrial facility that discharge into the river. The facilities include the Winchester/Winsted WPCF, New Hartford WPCF, Canton WPCF, Farmington WPCF, Simsbury WPFC, Bristol WPCF, Plymouth WPCF and Plainville WPCF. The seasonal (April 1st through October 31st) nutrient loading from each facility discharging to the watershed was reduced to achieve an enrichment factor ("EF") of 8.4 or lower throughout the river. An EF is representative of the amount of anthropogenic phosphorus loading to river and streams. It is calculated by dividing the current total seasonal phosphorus load by a modeled total phosphorus load under complete forested conditions at a particular point along the river. The goal of an 8.4 enrichment factor represents a threshold at which a significant change is seen in the algal communities indicating highly enriched conditions and impacts to aquatic life uses.

The current enrichment factor at the Bristol WPCF discharge is 75.4. The final proposed seasonal load allocation for Bristol WPCF is 7.48 lbs/day. This load equates to a proposed treatment performance limit of 0.1 mg/L multiplied by the current seasonal average flow of 8.96 MGD.

This limit is consistent with the narrative policy statements in the CT WQS (Paragraph 19, page 6 and SURFACE WATER CLASSIFICATIONS AND CRITERIA, CLASS B DESIGNATED USES AND CRITERIA, *page 12) and where the facility discharges its effluent is expected to result in the attainment and maintenance of all designated uses for that portion of the Quinnipiac River. If the Department develops numeric criteria in the future, or it is found that the current limit is not sufficient to achieve designated uses, the facility may need to meet a more stringent limit.*

Translating the average performance level of 7.48 lbs/day into enforceable permit limits requires consideration of effluent variability and frequency of monitoring in order to comply with federal permitting regulations. The procedure used is as follows:

1. Consider the permit performance level (0.1mg/L) to be equivalent to the Long Term Average (LTA)

2. Calculate the Maximum Daily Limit by multiplying the LTA by the 99th percentile LTA Multiplier appearing in Table 5-2 of the Technical Support Document (page 103 of EPA/505/2-90-001) corresponding to a CV of 0.6% to account for effluent variability:

*Maximum Daily Limit: 0.1mg/L * 3.11 = 0.311 mg/L*

3. Calculate the Average Monthly Limit by multiplying the LTA by the 95th percentile LTA Multiplier appearing in Table 5-2 of the Technical Support Document corresponding to a CV of 0.6% to account for effluent variability and either n=4 samples/month or n=10 samples/month as appropriate for the facility to account for the precision of estimating the true monthly average based on an average for the days the effluent was sampled:

*Average Monthly Limit: 0.1 mg/l * 1.38 = 0.138 mg/l*

Summary of Limits for [POTW's name]:
Average Daily Load = 7.48 lbs/day
Total Seasonal Load = (7.48 lbs/day * 214 Days/Season) = 1600.72
Maximum Daily Limit = 0.31 mg/L
Average Monthly Limit = 0.14 mg/L]

With respect to the foregoing summary of limits, it should be noted that compliance with the Maximum Daily Limit or the Average Monthly Limit during the time the seasonal load limit is calculated will not ensure compliance with the Total Seasonal Load limit. For example, if the Permittee discharged phosphorus at the maximum permitted by either the Maximum Daily Limit or the Average Monthly Limit throughout the time that the seasonal load is calculated, the Permittee would exceed the Total Seasonal Load limit. For this reason, the Permittee must monitor compliance with the Total Seasonal Load limit independent of its compliance with the Maximum Daily Limit and the Average Monthly Limit.

WATER QUALITY LIMIT CALCULATIONS
See attached.

The current water quality limit calculations indicate a need to include nickel as a metal of concern to limit. Additional monitoring data is being required for Arsenic, Cadmium, and Chromium that is consistent with current minimum detection limits and will, therefore, give accurate data for a future decision concerning a possible need for water quality based limitations.